CLAIMS

What is claimed is:

1. A thermal transfer compound, comprising:

a polyol ester, an antioxidant, a boron nitride filler, a high viscosity oil, a surfactant, a polystyrene-based polymer and a solvent.

2. The compound as recited in claim 1, wherein the polyol ester and the antioxidant form a pre-blend with the polyol ester making up about 99 wt. percent of the pre-blend, and the antioxidant making up about 1 wt. percent of the pre-blend.

3. The compound as recited in claim 2, wherein the pre-blend is in the amount of about 8 to 12 wt. percent of the compound.

4. A thermal transfer compound, comprising:

a polyol ester, an antioxidant, a boron nitride filler, a high viscosity oil and aluminum silicate.

5. The compound as recited in claim 4, wherein the polyol ester and the antioxidant form a pre-blend with the polyol ester making up about 99 wt. percent of the pre-blend, and the antioxidant making up about 1 wt. percent of the pre-blend.

6. The compound as recited in claim 5, wherein the pre-blend is in the amount of about 10 to 12 wt. percent of the compound.

7. A thermal interface material, comprising:

a thermally conductive compound made of a polyol ester, an antioxidant, a boron nitride filler, a high viscosity oil, a surfactant, a polystyrene-based polymer and a solvent, and a sheet receiving, on at least one surface thereof, the compound.

8. The material as recited in claim 7, wherein the sheet is polypropylene.

9. A method for providing a thermal interface material for electronic component assemblies, comprising the following steps:

a) providing a heat generating electronic component with a first surface;

b) providing a substrate with a second surface with which the first surface is to interface;

c) disposing the compound produced according to claim 1 on a first surface of a sheet;

d) placing the first surface of the sheet on the first surface of the heat generating electronic component with the compound therebetween;

e) removing the sheet; and

f) placing the second surface of the substrate on the first surface of the heat generating electronic component with the compound therebetween to effectuate heat transfer between the component and the substrate.

10. The method as recited in claim 9, wherein the compound is disposed by the following steps:

g) placing a relatively thin layer of the compound onto the first surface of the sheet;

h) cutting the sheet into a shape corresponding to a shape of the first surface of the heat generating electronic component; and

i) placing the cut sheet on the first surface of the heat generating electronic component with the compound therebetween.

11. A method for providing a thermal interface material for electronic component assemblies, comprising the following steps:

a) providing a heat generating electronic component with a first surface;

b) providing a substrate with a second surface with which the first surface is to interface;

c) disposing the compound produced according to claim 4 on a first surface of a sheet;

d) placing the first surface of the sheet on the first surface of the heat generating electronic component with the compound therebetween;

e) removing the sheet; and

f) placing the second surface of the substrate on the first surface of the heat generating electronic component with the compound therebetween to effectuate heat transfer

between the component and the substrate.

12. The method as recited in claim 11, wherein the compound is disposed by the following steps:

g) forming a block of the compound to fit a shape of a gap between the first surface of the component and the second surface of the substrate;

h) placing a surface of the block on a sheet;

i) placing the block and sheet in the gap between the first surface of the component and the second surface;

j) removing the sheet; and

k) applying pressure to at least one of the component and substrate.

13. A non-water soluble thermal transfer compound, comprising:

a polyol ester, an antioxidant, a boron nitride filler, a high viscosity oil, a surfactant, a polystyrene-based polymer and a solvent.

14. A non-water soluble thermal transfer compound, comprising:

a polyol ester, an antioxidant, a boron nitride filler, a high viscosity oil and aluminum silicate.

15. A non-water soluble thermal interface material, comprising:

a thermally conductive compound made of a polyol ester, an antioxidant, a boron nitride filler, a high viscosity oil, a surfactant, a polystyrene-based polymer and a solvent, and a sheet receiving, on at least one surface thereof, the compound.

16. A method for forming a thermal interface material, comprising the steps of:

forming a thermally conductive compound from a polyol ester, an antioxidant, a boron nitride filler, a high viscosity oil, a surfactant, a polystyrene-based polymer and a solvent;

coating a sheet, on at least one surface thereof, with the compound; and

removing the sheet.

17. A method for forming a thermal interface material, comprising the steps of:

forming a thermally conductive compound from a polyol ester, an antioxidant, a boron nitride filler, a high viscosity oil, a surfactant, a polystyrene-based polymer and a solvent;

coating a sheet, on a surface thereof, with the compound to form a film;

allowing at least part of the solvent to evaporate;

placing the sheet on a heat generating device with the compound therebetween;

removing the sheet; and

placing a heat sink on the compound.

18. A method for providing a thermal interface material on a heat generating component, comprising the following steps:

a) providing the heat generating component with a first surface;

b) providing a second surface on a heat dissipating component upon which the first surface of the heat generating component is to be mounted; and

c) disposing a thermal interface material including a polyol ester and boron nitride between the first and second surfaces to effectuate heat transfer from the heat generating component to the heat dissipating component.

19. The method of claim 18, whereby the disposing step is by the following steps:

d) shaping a block of the material to fit a shape of a gap between the first and second surfaces; and

e) placing the block in the gap between the first and second surfaces.

20. The method of claim 18, whereby the disposing step is by the following steps:

d) disposing a relatively thin layer of the material onto a sheet;

e) attaching the material and sheet to said one of the first and second surfaces; and

f) removing the sheet.